

## Food Aid and Child Nutrition in Rural Ethiopia

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Food aid programs have become increasingly important for disaster relief in many developing countries. In Ethiopia, a drought-stricken economy with one of the lowest per capita incomes in the world, food aid has amounted to almost 10 million metric tons from 1984 to 1998. Evaluations of the effectiveness of food aid in Ethiopia often focus on the appropriate modality of food aid, whether free distribution (FD) or food-for-work (FFW). FD programs distribute cereals directly to households, while participants in FFW programs typically work in community development programs, such as roads, terraces, dams, and local infrastructure construction.

### *Purpose of This Study*

While many evaluations of food aid have examined its impact on household calorie availability, this paper focuses on the effects of food aid on *individual* nutritional status, as measured by indicators of child nutrition. It draws on a growing body of empirical literature that suggests that individuals within households have different preferences and do not pool their resources. Thus, the effect of public transfers such as food aid may differ, depending on who the recipient is. Specifically, the paper examines whether the impact on nutritional status differs depending on the gender of the aid recipient and the gender of the child. The paper also investigates the determinants of participation in, and receipts of, food aid through FD or FFW, and whether the two modalities of food aid delivery represented by these programs matter for the impacts on nutritional status.

### *Data*

This study makes use of a unique panel data set from rural Ethiopia that contains information on individual anthropometric outcomes and house-

hold food aid receipts for four survey rounds between 1994 and 1997. Since there are multiple observations on individuals, the study also ascertains whether there are longer-term effects of food aid on nutritional status.

This data set is derived from all four rounds of the Ethiopian Rural Household Survey (ERHS), which covered approximately 1,500 households in 15 villages across Ethiopia. The villages were chosen to ensure that the major farming systems are represented. While not statistically representative of rural Ethiopia as a whole, they do include all major agroecological, ethnic, and religious groups.

The ERHS collected data on various issues, such as consumption expenditures, wealth, income, and health, anthropometric measurements for all household members, and intrahousehold allocation issues. Each survey round obtained information on income earned from various activities in the past four months, including FFW.

Information on individual rainfall and livestock disease shocks was collected based on recall of events in the last cropping season and the relevant harvest. These were used to construct indices of adverse occurrences affecting crop and livestock production, which the paper uses as proxies for aggregate shocks.

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### *Methodology*

The empirical portion of this paper consists of two parts. The first part examines the determinants of participation in FFW and FFW receipts, as well as the determi-

nants of the probability of receiving FD and FD receipts. In addition to individual and family characteristics, the study includes household- and village-level rainfall and livestock disease shocks to investigate the extent to which households and individuals use food aid to mitigate the effects of

these shocks. In the second part, the paper models current child nutritional status as a function of past nutritional status, receipts of FFW or FD, consumption net of food aid, and aggregate rainfall and livestock disease shocks.

### ***Results and Discussion***

The analysis of both FD and FFW receipts shows that these increase with negative rainfall and livestock shocks, thus performing an important consumption-smoothing function. Participation in FFW also seems to be well-targeted to poorer households. While participation in FD seems to be motivated more by household characteristics, such as the presence of young children rather than household wealth, FD receipts do decline with wealth. Thus, both programs are also reaching poorer and more vulnerable households in their communities.

The analysis at the first level, however, does not reveal whom in the household benefits from aid received. The analysis of child nutritional status shows that the effects of food aid on individuals within the household differ, depending on the modality of food aid and the gender of the child. Both FFW and FD have a positive direct impact on weight-for-height, which is expected to respond more to these interventions in the short run.

Households seem to invest proceeds from FD, which can be interpreted as an increase in unearned income, in girls' nutrition, while earnings

from FFW are manifested in better nutrition in boys. The effects of the gender of the aid recipient are not conclusive.

Why would different forms of transfer income be invested differentially depending on the gender of the child? First, parents may want to use some forms of aid to redress imbalances among children. Nutritional status indicators, while poor for both boys and girls, become progressively worse for boys. Second, it may be due to returns that parents expect to reap from children in their old age. If boys are important sources of old-age security, mothers may choose to invest preferentially in boys. If FFW is increasingly targeted to women, mothers may use their increased bargaining power to preferentially invest in boys. A general increase in household wealth, however, operating through FD receipts, may result in better outcomes for girls.

These findings suggest that stopping at the household level to assess the impact of food aid may not reveal how the modality of food aid affects investments in the next generation. The effects of food aid are not limited to its effects on unearned income and women's outside options. Therefore, program designers need to examine the impact of food aid on individual outcomes, both for adults and for the next generation, to better assess food aid's long-term impact.

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